Available online at www.sciencedirect.com

ScienceDirect

Electronic Notes in Theoretical Computer Science 317 (2015) 1–2

Electronic Notes in Theoretical Computer Science

www.elsevier.com/locate/entcs

Preface

The articles contained in this volume were presented at the Seventh and Eighth International Workshops on Numerical Software Verification (NSV), held on July 17-18, 2014 and April 13, 2015, respectively. The NSV workshop is alternatively collocated with the International Conference on Computer Aided Verification (CAV) and the International Conference on Hybrid Systems: Computation and Control (HSCC). In 2014, NSV was organized jointly with the 26th International Conference on Computer Aided Verification, as a satellite workshop of Vienna Summer of Logic 2014 which took place at the Vienna University of Technology, Vienna, Austria, from July 9 to July 24. In 2015, NSV was organized jointly with the 18th ACM International Conference on Hybrid Systems: Computation and Control and was an official workshop of the Cyber-Physical System Week held from April 13 to April 16 at Washington State Convention Center, Seattle, WA, USA.

Numerical computations are ubiquitous in digital systems: supervision, prediction, simulation and signal processing rely heavily on numerical calculus to achieve desired goals. Design and verification of numerical algorithms has a unique set of challenges, which set it apart from rest of software verification. To achieve the verification and validation of global properties, numerical techniques need to precisely represent local behaviors of each component. The implementation of numerical techniques on modern hardware adds another layer of approximation because of the use of finite representations of infinite precision numbers that usually lack basic arithmetic properties such as commutativity and associativity. Finally, the development and analysis of cyber-physical systems (CPS) which involve the interacting continuous and discrete components pose a further challenge. It is hence imperative to develop logical and mathematical techniques for the reasoning about programmability and reliability. The NSV workshop is dedicated to the development of such techniques.

The papers of both editions were refereed by the program committee and by several outside referees, whose help is gratefully acknowledged. The first four articles of this volume were presented at NSV'14 while the other articles were presented at NSV'15.

The members of the program commitee of NSV'14 were Sylvie Boldo (INRIA, France), Olivier Bouissou (CEA LIST, France) - chair, Jyotirmoy Deshmukh (Toy-

http://dx.doi.org/10.1016/j.entcs.2015.10.001

ota, USA), Khalil Ghorbal (CMU, USA) - chair, Eric Goubault (CEA LIST, France), Sylvie Putot (CEA LIST, France) and Sriram Sankaranarayanan (Boulder University, USA).

For NSV'15, the program commitee was composed by Ezio Bartocci (Vienna University of Technology, Austria), Sylvie Boldo (INRIA, France), Sergiy Bogomolov (IST Austria, Austria) - chair, Olivier Bouissou (Mathworks, France), Sean Gao (MIT, USA), Khalil Ghorbal (CMU, USA), Eric Goubault (Ecole Polytechnique, France), Jim Kapinski (Toyota, USA), Matthieu Martel (Université de Perpignan, France) - chair, Ian Mitchell (University of British Columbia, Canada), Jan Otop (IST, Austria), Pavithra Prabhakar (IMDEA, Spain) and Walid Taha (Halmstadt University & Rice University, Sweden).

The invited speakers at NSV'14 were Jean-Michel Muller (ENS-Lyon, France), Sumit Kumar Jha (University of Central Florida, USA), Tommaso Dreossi (Verimag, France), Sicun Gao (MIT, USA), Philippe Theveny (ENS-Lyon, France), James Kapinski (Toyota, USA). The invited speakers at NSV'15 were Andreas Griewank (Humboldt University of Berlin, Germany), Radu Grosu (Technical University of Vienna, Austria) and Taylor T. Johnson (University of Texas at Arlington, USA).

The first six NSV meetings were held in Princeton, New Jersey, collocated with CAV (2008), San Fransisco, California, collocated with CPSWeek (2009), Edinburgh, UK, collocated with FLoC (2010), Salt lake City, Utah, collocated with CAV (2011), Berkeley, California, collocated with CAV (2012) and Philadelphia, Pennsylvania, collocated with CPSWeek (2013).

Sergiy Bogomolov
Matthieu Martel